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# TAR HEEL WASH OFF

UNITED STATES DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE

# DEEP RIVER AREA.

HIGH POINT, NORTH CAROLINA

Eiri So-U. Washington, D. C.

#### THE STATE COORDINATOR'S MESSAGE

The Deep River project of the Soil Conservation Service can well be cited as a classic example of what can be accomplished when various public-spirited organizations and individuals work together harmoniously to a common end.

In this concerted effort to control erosion in Randolph, Forsyth, and Guilford counties, the support of the county agricultural agents, the teachers of vocational agriculture, the civic clubs, individual citimens of the city, and the support of the cooperating farmers of the area has been both genuine and generous. To this cooperation, the marked success of the soil conservation program is largely due.

The reason why the Soil Conservation Service has been able to secure such splendid cooperation is that the individual citizens of the area, both urban and rural, seem to have developed a sensitized conscience. What I mean is well illustrated by the following incident:

A few days ago, I had occasion to cross the Yadkin river. On that particular day, the Yadkin was carrying, as it usually does, a very heavy load of silt. As we crossed the bridge, I remarked how thousands of dollars worth of fertile soil was passing down the stream every day; to which my companion, a prominent citizen, replied, "Yes, and not only is the good earth passing down the stream but also the health, the hopes, and the moral stamina of our people." After a brief pause, he added this significant remark, "If any man can look at the Yadkin river, knowing the destruc-

tion and the desolation that is being wrought and not experience a feeling of deep concern, that man can well be placed in the same class with Nero who fiddled while Rome burned."

This feeling of concern for the public welfare seems to be growing among the people of the Deep River area. No man by careless methods of farming injures himself only. Uncontrolled erosion on one farm means not only a lowering of the fertility of that one farm, but a general lowering of the value of all the land in the community. It means also a lowering of the water supply for all, and a curtailment of the water power for all. It means a blot on the brightness and beauty of the entire countryside. In the final analysis, it means also a definite contribution to the ignorance, the poverty, the disease, and the crime of the entire community.

The average citizens are beginning to realize this. They perceive that just as one man who burns a tract of timber, or pollutes a stream, inflicts an injury on many, just so the farmer who allows erosion to continue uncontrolled, inflicts an injury in some manner on every one in his community.

The cooperation of these various agencies, therefore - especially of the farmers themselves, in putting into effect an erosion control program in the Deep River area, is indicative of a public spirit of the highest order. It secures the coordination of our educational program of broadcasting the message of soil erosion control and conservation.

#### WEEDS

"A man of words and not of deeds
Is like an old farm full of weeds."

The average annual loss due to weeds in the United States is more than \$1,000,000,000. Much of this loss can be prevented by proper methods of control.

## How Weed Seed Is Scattered

- 1. By wind
- 2. By water
- 3. By animals
- 4. In seeds and feeds

## How Weeds Cause Losses

- 1. Use fertility and moisture
- 2. Lower quality of crops
- 3. Increase cost of production
- 4. Act as host for insects and diseases
- 5. Poison and injure livestock
- 6. Reduce land value
- 7. Cause hay fever and skin eruptions

### How Weeds Can Be Controlled

- 1. By mowing
- By practicing clean tillage on cultivated fields
- 3. By planting pure seeds
- 4. By crop rotation
- 5. By putting manure into a compost before taking it to the field
- 6. By spraying with chemicals

#### DEEP RIVER SOILS

The farmer in the Deep River area who does not use wise soil conservation practices is just as foolish as a banker would be if he did not lock his money in a vault.

Soil is the remains of disintegrated and decomposed rock plus the addition of some organic matter. Rocks consist of various minerals and these react to the chemical agents of weathering differently and at very different rates. All of the Deep River soila, however, have certain characteristics that make conservation practices imperative.

Our soils are of only average fertility, which makes them all the easier to become depleted or worn out. For most crops, all the soils are deficient in nitrogen. This nitrogen supply can be increased by the addition of organic matter except on poorly drained soil. The reason for this is that bacteria tends to destroy humus in the soil and our climate is such that it makes a relatively good growth of bacteria.

It can therefore be seen that we can never hope to have soil very high in humus, and it is all the more necessary to supply the soil with as much organic matter as possible. It is here that wise soil conservation practices come in. The program of the SCS includes rotations, using legumes, green manure crops, and other thick growing crops which not only build the soil but also tend to reduce erosion and keep the soil where it is.

#### BACK TO THE FARM

The Department of Commerce in its last survey reveals that farm population reached a new peak January 1st, 1935, which showed nearly 32 million persons living on American farms; an increase of more than 1,300,000 persons over the rural population of 1920. Farm dwellers now represent approximately 25 percent of the total population of the United States.

The last two generations witnessed a great exodus from farm to city. In searching for a reason for the desertion of the farm, we find a number of causes, chief among which are the following: the haphazard, monotonous methods of farming had made life drab and the farm unprofitable; the lure of city life which the Press made attractive; a growing impatience with an existence bordering on poverty.

But with the advent of better farming practices, such as are being demonstrated by the SCS in the Deep River area, the pendulum swings back to the farm.

This migration "back to the country" is by no means explained by industrial depression in the cities. An intensive educational program carried out during the past few years by the Department of Agriculture through such agencies as the SCS, has created a farm consciousness among the younger generation, who realize that in the soil there is a more definite "cash in reserve" for profitable enterprise than can be created in urban centers.

With the advent of better farming practices,

the expansion of rural electrification, the improvement in transportation and cultural background, those born on the farm are feeling that work around the old farmstead pays just as good dividends as labor in the city.

In this renascence of agriculture, a representative democracy is finding rebirth in our farm areas, which is a far better guarantee to the stability of American institutions than the skyscrapers of the cities.

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#### HOW MANY CAN YOU ANSWER?

- Q. 1. Do terraces need attention by the farmer after they are built?
- Q. 2. Do terrace outlet channels require any attention by the farmer?
- Q. 3. Does fall plowing control or help to control erosion?
- Q. 4. How many acres have been strip-cropped on Deep River area?
- Q. 5. Aside from commercial value, of what other benefits are woodlands?
- Q. 6. What plants make good winter wildlife food?

(See page 18 for answers.)

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Against a wooded hill it stands,
Ghosts of a dead home staring through
Its broken lights on wasted lands
Where old-time harvests grew. (Whittier)

#### ROLD EROSION

There are definite relationships between the dust or mud of unpavod roads, the native fertility of soils, and the problem of soil erosion.

As we ride over the unimproved roads of the Deep River area during a dry period, everybody is "chokingly" aware of the fact that the dustiest roads today were the muddiest roads of last year. Where we now cut our way through heavily dust-laden air, we then plowed through mud axledeep, or jumped gullies in the roadbed if we moved at all.

The popular interpretation of erosion is the formation of gullies on a cultivated hill-side. This is quite visible evidence of soil removal. But there are other forms of erosion which are quite serious, though less apparent to the eye, i.e., sheet erosion, or the more or less uniform removal of soil material from cultivated land; the cutting back and caving in of road cuts and ditches; and road erosion. Damage may result from washing rains, from "dust" removal in dry weather, or from frost action.

Unimproved roads suffer from all three agencies, paved roads from frost action, and gravel roads may be harmed by any agency to a degree varying with the type of material used in construction. Our most productive soils make the pocrest road material and the most erodible road base. These are the soils we need to conserve and keep on the farm for cash income.

The most recent survey reveals 28 different soil types in the Deep River area. Our better soils are deeply weathered silt loams, loams, or

clay loams which contain very little sand or rock fragment material. The less productive soils are largely duite sandy and often contain much gravel. It is obvious that many of the poorer soils are really good road material as the coarser material promotes good drainage and lessens the amount of water content. However. it does not follow that under tillage the better soils are more erosive, because the reverse is often true by reason of farming practices to control erosion. This analogy may be carried to hard surface roads. With the exception of most concrete highways, practically all the hard surface roads in this section suffered severe damage during the cold weather, due largely to frost action - the freezing of water which had seeped through the pavement, and the lifting and resultant breaking of the road material. Here again we find real road erosion which also may be linked to soil culture.

Roads built from less productive soils show less frost action erosion than roads laid on more fertile land; those with more sand and gravel did not leave enough water immediately under the pavement to cause appreciable damage from freezing. On the other hand, the more fertile clays retained so much moisture that the lifting power of the resultant "frost action" brought about "paved road erosion."

Through its demonstrations, the SCS is showing how to keep the good "pay dirt" at home and "road erosion" may be held to a minimum, keeping runoff water from roads because stream channels are not filled with soil material. Road bank planting is checking much overflow water as well as seepage and undermining of pavement. The use of gravel and sand as a base for hard surface over clay soils will eliminate much frost action damage during severe winters.

## EDITORIALS

#### THE TARPET, WASHOFF

PUBLISHED MONTHLY BY THE DEPARTMENT OF AGRICULTURE, SOIL CONSERVATION SERVICE NORTH CAROLINA AREA

FEDERAL BUILDING - High Point, N. C. STATE COORDINATOR - Dr. J. H. Stallings

Vol. II July, 1936

No. 7

#### THE HUMAN ELEMENT

The story of the human element in soil exosion is one of the decline of civilizations. In the remote past agriculture symbolized national prosperity. Again and again it has been said that there is but one problem - the man problem. All problems -physical, economic, social, political, and moral could be easily solved if this man problem were solved. The human element interlaces and predominates in them all. The handwriting on the wall in every age has been, "Erosion must be checked if our civilization is to endure." Physical erosion has its repercussions in every phase of human society.

It is not only with the physical aspect of the erosion problem that the SCS is concerned, but also with the human element, its debasement, its bet-

terment, and its prosperity. In areas where courageous forebears wrested a livelihood from the soil, doing the best they could but following the line of least resistance, tenant farming gradually increased with the passing of time, so much so that when the government program was launched to control the devastating process of soil erosion, the percentage of tenancy was high, preponderating largely in sharecropper leases. The sharecropper is frequently on the move and invariably leaves behind him an impoverished area. The type of life he represents, with exceptions here and there, means families raised without cultural background, deficient in education, and also degradation resulting from illiteracy. Throughout the whole process of soil erosion, the human element projects itself as the dominating and determining factor.

Through the leadership of the SCS and the cooperation of county agents, vocational teachers, farm and civic organizations, supplemented by the splendid support of the local Press, many farmers have become demonstrators of what the SCS program really means. The human element, i.e., the now unhesitating cooperation of the farmers is today a paramount factor in the erosion control program. Old methods of farming are being changed and farmers are realizing that the farm is not a place to make a living at the cost of soil impoverishment.

The change in the farmer's attitude has reacted on the business men. They realize that this program is something apart from partisan politics and reflects itself in industrial and commercial prosperity through the farmers' wellbeing. Today, they are deeply concerned for the elevation of farm life. If the valuable resources temporarily entrusted to our care are wisely conserved, a worthy horitage will be handed down to future generations.

#### BLACK LOCUST

Black Locust is one tree species that farmers throughout the Deep River area should cultivate more intimately. While many other species of valuable hardwoods, such as Black Walnut, Tulip Poplar, etc. have been planted in the Deep River watershed by the Soil Conservation Service, over 420,000 Black Locust trees have been planted in this area to check soil erosion and for soil conservation.

This is one species that will amply repay Deep River farmers to plant plentifully, particularly on gullied and barren areas. The original home of this tree is the Appalachian mountains, but it is now found in practically every State of the Union. It is particularly adapted to croded and barren areas on the farm, and once given a chance it roots deeply and spreads out rapidly to very respectable proportions. No tree of the field or forest has greater erosion preventing or soil enrichment qualities.

Black Locust is a very substantial tree - heavy, tough, hard, and for durability is well toward the top of the list. Rapid growth and adaptability to many types of soil are two outstanding characteristics. In Piedmont North Carclina, Black Locust grows annually from one quarter to one half inch in diameter after the first five years, and during the same period, from one to two feet upon favorable soils. A fifteen year old tree has an average diameter, outside the bark, of three to five inches, and a height of twenty to thirty feet.

Black Locust is of high commercial value. In this country, its largest commercial use is

for making insulator pins; approximately 25,000,000 pins annually are produced for demostic and foreign use. Its strength, durability, and freedom from excess swelling and shrinkage, fits it preeminently for this purpose. It is better than cedar, or, in fact, any other native tree for fence posts.

From the viewpoint of erosion and eventual financial returns, the cultivation of the Black Locust is worthy of more thought by the farmers of the Deep River area. However, it should be pointed out that the greatest care should be taken to keep fire away from Locust planted areas, as the Black Locust is not fire-resistent. All livestock except poultry should be excluded from planted areas as cattle will browse freely on the young trees, and the thicker the stand, the better the purpose of erosion control is served.

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### SOMETHING TO WORRY ABOUT

Not long ago, a man in North Carolina worried himself into suicide. He worried over the thought that in 100 million years the sun's heat would give out and everybody on this earth would freeze to death. That certainly was the superlative exaggeration of concern for future generations. We wonder if he ever worried over the fact that last year 250,000 acres of North Carolina's finest timber land were destroyed by preventable fires! We wonder if he ever worried over the fact that the State of North Carolina every year loses financially by erosion four times as much as it takes to run the entire school system of the State!

#### DROUGHT AND CROP PRODUCTION

The actual cash toll of erosion that must be paid by the farmers of the Doep River area is illustrated this year as clearly as a bank statement.

This spring's period of drought has stripped all pretense from our soils. It has made it impossible for the poor soil to masquerade as good. Fertilizers and farm practices have not had the effect this year that they have had in years of normal rainfall. This lesson of crops still stunted and poor in spite of the rains of the past few weeks, surely shows us how important it is to preserve the good soil that we still have and to do our best to rebuild the soils that still have but partial erosion.

A recent survey of the Deep River area revealed that the relationship between good soils and good crops, poor soils and poor crops, worthless soils and worthless crops, was invariable.

Areas with little or no erosion show stands of all crops, tobacco, corm, and cotton with normal growth. Sloping lands with partial erosion show everywhere from ten to finety percent stunt in development, depending upon the severity of erosion; while lands so badly eroded that only the subsoil is left have little or no growth at all.

We have had other dry spells in the past, and may be sure that we will have more in the future. Each drought brings in its train ever more serious consequences, because erosion is taking a steadily increasing hold on the countryside.

Such practices as strip cropping, contour tillage, crop rotation and terracing where needed, as advocated by the SCS, help to check erosion. If these practices are not more generally. adopted in the Deep River area, our percentage of good crops throughout the dry spell or of fair crops with fair growth will grow less with each succeeding drought.

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#### LESPEDUZA AND WEEDS

Lespedeza fields with a heavy growth of weeds should be mowed to conserve moisture and plant food which would ordinarily be used by the lespedeza plants but may be lost through heavy weed growth.

Our recent drought affected lespedeza far more than the hardy weed growth. When the rains came, weeds were able to get away ahead of the lespedeza and dominate the growth; also retard development by shading.

If the weeds are not mowed now, both quality and quantity of lespedeza hay will be seriously decreased, as weeds are coarse and have little food value. On the other hand, if mowed early enough in the immature stage, weeds settle and decay to form mulching material to conserve moisture for better hay production. If growth is very heavy, the weeds may be raked and spread over badly eroded and gullied areas on the farm. Cutting of weeds from fields to be harvested for seed will greatly improve the quality of the seeds, and "purity" is one of the basic factors in determining the price.

Seeding lespedeza on small grain also as-sures a good quality of hay. Small grains make an earlier growth than weeds and overshadow them. Crain is harvested before lespedeza attains much growth, thereby giving the legumes a free growing season without -14- competition.

#### TERRACE OUTLETS

Careful attention should be given to terrace outlets by cooperating farmers throughout the Deep River area who have terraces on their land.

Terrace outlets should receive even more care than the terraces themselves, since they are subject to much more erosion. The grade of the terrace channel is gentle - never more than four inches to one hundred feet - and the channel outlet ordinarily is carrying runoff water from several terraces at a point where the fall may be several feet to the hundred.

The general practice throughout the South has been to build terraces and let outlets take care of themselves. With the increase in velocity of the runoff water, valuable topsoil is washed away, and unless protective measures are taken, a gully is started which eats its way up the hill and up the terrace.

Where natural outlets are not available, special outlets must be constructed. The farmer should go over these after the first heavy rain to be sure that everything is in good shape. At least one or two inspections should be made each year of all permanent structures and any damage repaired. On outlets protected with vegetative methods, more care must be given. Where grass is protecting the outlet, it should be moved often enough to prevent rank growth, since rank growth causes silt deposits with resultant damage to the channel.

#### FOREST FIRES

The number of forest fires in the Deep
River area has been above the average for a
period covering the past five years, and the
economic value of timbered areas considerably
reduced thereby.

While the extremely dry weather has undoubtedly been an important factor in these fires, the all-important factor has been "carelessness" either on the part of smokers tossing away lighted cigarette stubs and flinging matches from their automobiles, or from the burning of brush and other debris by the farmer.

Uncontrolled forest fires are absolutely destructive. They directly destroy humus, leaf-litter and reproduction, damage native timber, cause the rapid run-off of water, and increase erosion.

The Soil Conservation Service has planted 1,397,755 trees and shrubs in the Deep River area. This represents a considerable amount of labor and a considerable outlay of cost for seedlings and other materials. Fire destroys these young plantations, thus nullifying the work done, doubling the cost, and delaying the control of erosion on these areas for several years.

Would you like to have the responsibility for any of these blackened areas? If not, then think before you toss a lighted cigarette or match away; never burn brush or debris on a dry, windy day, and always be sure your fire is completely out before you leave.

#### SHRUB PLANTING AND WILDLIFE

The wildlife department of the Soil Conservation service has just completed a busy planting season. More than 450,000 food-producing shrubs, and over 5000 food-producing seeds have been planted in the Deep River area during the season just closed.

In carrying out this phase of the program, erosion control is kept uppermost in mind. While the shrubs and plants used are for the purpose of providing food and cover for desirable wildlife, at the same time, they are chosen because of their erosion control qualities. The propogation and development of wildlife occupies a very important place in any proper land use program.

Of the wild creatures that inhabit the farm and its vicinity, birds are the most profitable to the farmer, and require the greater protection. Especially ground-nesting birds, chief among which is the quail. The nest of the quail and other ground-nesting birds is frequently found in grain fields and meadows, where they are endangered, not only by predatory enemies but also by the machinery used in harvesting the grain or hay, which often destroys the nests and kills the young birds.

It is often inconvenient to get machinery into corners and odd spots in a field; if such places are left, they will furnish good food and cover. Occasionally a thicket will be found near the edge or in the middle of a large field. These

are good places to leave some standing grain.

Erosion control measures applied in the Deep River are are planned to increase desirable forms of wildlife, and from the viewpoint of economic loss through insect pests, wildlife conservation and development is of tremendous importance.

It has been estimated that one covey of quail will clear the beetles from one acre of potatoes. The food of the wren is 98% insects, while that of the bluebird is 75%, the menu of the kingbird is 90%, and that of the wood peewee is 100% insects.

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#### ANSWERS TO QUESTIONS

- 1. Yes. The flow line should be kept open and uniform; the height of the terrace should be maintained at all times, and should not be plowed or disced across.
  - 2. Yes. See article on page 15.
- 3. Yes. Experiments show that fall plowing reduces erosion about one-third and conserves moisture proportionately.
  - 4. Over 3,000 acres.
- 5. Forests act as windbreaks; they retard runoff from rains, serve as cover and food for game and other wildlife, and provide a place for recreation.
  - 6. Scotch broom, grapetangles, evergreen trees.

UNITED STATES
DEPARTMENT OF AGRICULTURE
Soil Conservation Service
High Point, N. C.

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